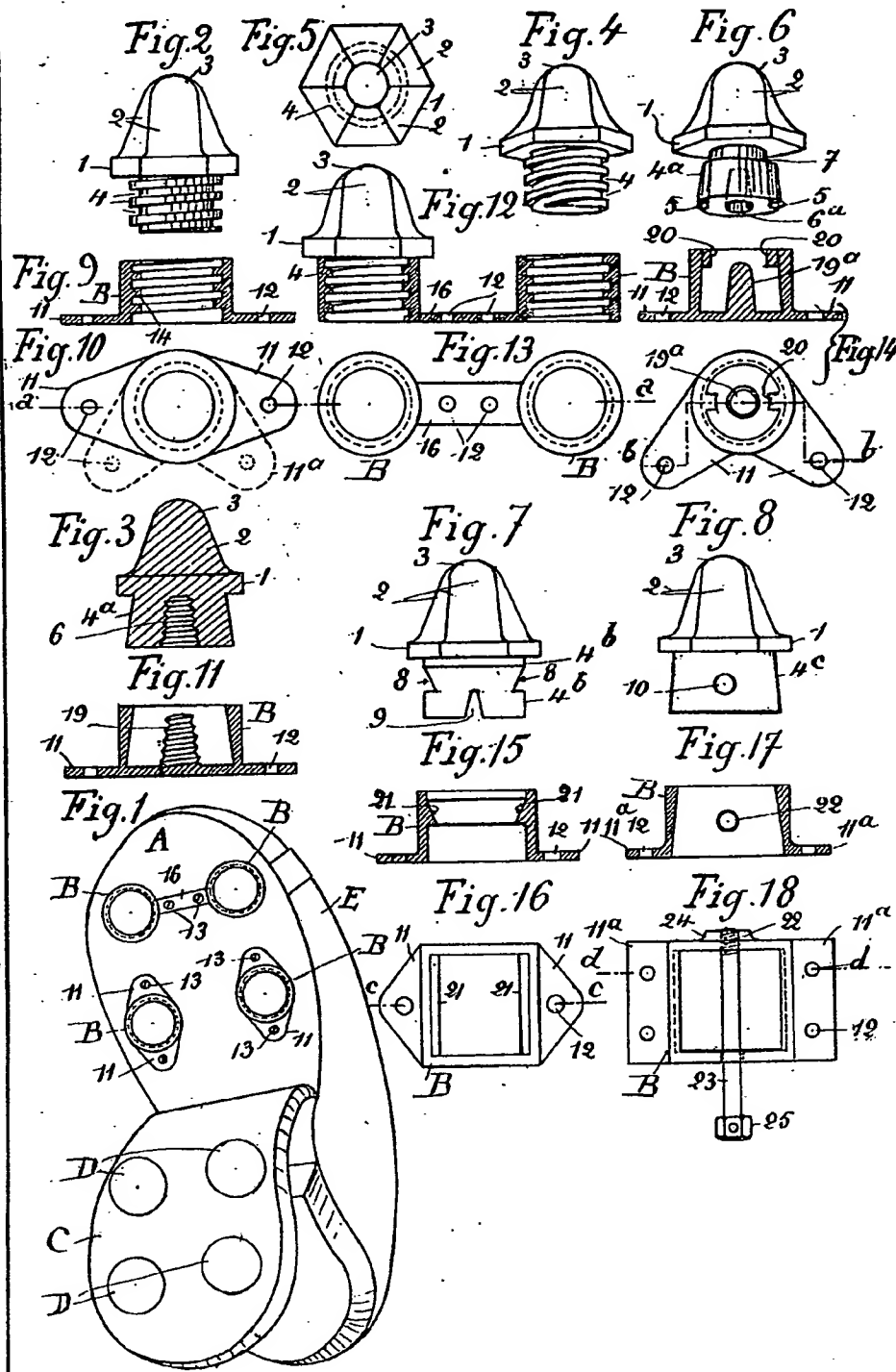


[This Drawing is a reproduction of the Original on a reduced scale.]





" " Jan. 7, 1929: No. 510/29.

One Complete Left: Jan. 31, 1929.

Complete Accepted: Oct. 1, 1929.

## PROVISIONAL SPECIFICATION:

No. 12,758, A.D. 1928.

# Improvements in and relating to Boots or Shoes for Football and like Sports.

I, ADRIEN MORISSE, a French Citizen, of 4, rue Saint André, Rouen (Seine Inférieure), France, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in boots or shoes for football and like sports, and refers particularly to an improved stud for such boots or shoes.

The object of my invention is to provide an improved stud which is strong and secure in use but can be rapidly and easily removed or changed when broken or when the conditions of the ground call for studs of different length.

According to my invention a stud for a boot or shoe consists of a short cylindrical portion or base and a truncated conical portion terminating in a semi-spherical head, the stud being provided with means by which it can be detachably screwed on to or into an attachment part or plate which is permanently fixed in the sole of the boot or shoe.

The stud may be made of wood, vulcanized rubber, ebonite, compressed paper, or other suitable material.

For attachment purposes, the stud may have a screw-threaded part projecting from the base and adapted to be screwed into an internally screw-threaded socket in the sole of the boot or shoe, or the stud may be drilled axially from the base and tapped to screw on to a threaded rod pro-

jecting from the sole.

The cylindrical portion of the stud is conveniently knurled or formed with flats to facilitate screwing it into place either by hand or with a suitable key.

Instead of screwing, the stud may be secured by a bayonet catch or like connection.

Where the stud is secured by screwing, the stud or the attachment part may have longitudinal grooves cut in the screw-thread so that it acts as a tap to cut its way into the other part.

Where the stud is screwed on to a projecting rod, a metal socket of angular cross-section externally may be imbedded in the stud to receive the rod, and this socket may be made of a soft alloy so that the rod will cut a thread in it.

To prevent rotation of the attachment part, whether socket or rod, it may be integral with a flat elongated plate which is secured between the sole and in-sole of the boot or shoe by tubular screws or rivets passing through the sole.

Alternatively the attachment part which is imbedded in the sole may be of angular cross-section externally.

Dated this 30th day of April, 1928.

For the Applicant,  
BARKER, BRETTELL & DUNCAN,  
Chartered Patent Agents,  
75 & 77, Colmore Row, Birmingham.

## PROVISIONAL SPECIFICATION.

No. 510, A.D. 1929.

# Improvements in and relating to Boots for Football and like Sports.

I, ADRIEN MORISSE, a French Citizen, of 4, Rue de la Maladrerie, Rouen, (Seine Inférieure), France, do hereby declare the nature of this invention to be as follows:—

[Price 1/-]

This invention relates to improvements in boots or shoes for football and like sports, and refers particularly to boots or shoes having soles adapted to receive studs which are readily detachable to allow the

studs originally fitted to be removed and replaced by others of different shape or length as may be required by the condition of the playing field.

5 The object of my invention is to provide an improved form of stud and attachment by which the exchanging of the studs is facilitated and the anchorage of the studs in the sole is made thoroughly secure.

10 My invention comprises a stud formed in one piece with a base of cylindrical or polygonal outline and a head of suitable height having the form of a truncated cone with a rounded apex or of a polygonal pyramid with rounded corners. It is this head which projects from the sole of the boot or shoe.

On the opposite or inner side of the base is a foot or attachment part which may have various forms such as cylindrical, conical, or truncated pyramidal, and its surface is provided with grooves or projections. This part is adapted to be received in an opening of complementary form in a metal socket secured against the inner sole of the boot and projecting through holes in the outer sole.

The stud itself may be made of hard or medium rubber, wood, leather, ebonite, compressed paper, moulded formaldehyde condensation product, or other suitable material.

My invention further comprises metal sockets for the studs, the sockets being equal in number to the number of studs required to be fixed upon the sole of the boot. These sockets are externally of cylindrical or angular form, and their outer faces may be plane or concave.

40 The cylindrical sockets have internal helical grooves or diametrically opposed angular projections. These grooves or projections serve to secure, by screwing or by a bayonet catch connection, the inner end of the stud in the socket. The angular sockets have internal projections on two parallel faces to retain the inner end

of the stud after it has been forced into the socket, or alternatively two opposed sides of the socket may be pierced for the passage of a pin or screw which also passes through a hole in the inner end of the stud when the latter is in place in the socket.

Each cylindrical socket may have at one end two opposed lugs pierced to receive fixing pins or screws for securing it in place in a sole, or two sockets may be joined by a flat pierced plate or strip to form twin sockets. In either form the fixing is effected by nails or rivets on to the inner sole, and the body of the socket is received in a hole of complementary form cut in the outer sole of which the thickness is equal to the height of the socket.

Instead of providing the outer surface of a socket with pierced arms to receive fixing nails or rivets, it may be formed with claws which are forced into the material of the sole around the hole for the socket so that the socket is securely held.

In the case of a rectangular socket with concave outer faces this may be moulded into a rubber sole in the course of manufacture and this sole is then secured to the inner sole by any known method.

A cylindrical socket may have a plain inner surface with a central conical projection of a height less than that of the socket. The inner end of a stud may be screwed on to this projection which holds it securely in place, or alternatively the stud may have a pin-and-slot engagement with the peripheral wall of the socket, the central projection then assisting to make the connection rigid.

Dated this 27th day of December, 1928

For the Applicant,  
BARKER, BRETTELL & DUNCAN,  
Chartered Patent Agents,  
75 & 77, Colmore Row, Birmingham.

## COMPLETE SPECIFICATION.

### Improvements in and relating to Boots or Shoes for Football and like Sports.

I, ADRIEN MORISSE, a French Citizen, of 4, Rue de la Maladrerie, Rouen, Seine Inférieure, France, formerly of 4, Rue Saint André, Rouen, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in boots or shoes for football and like sports and refers particularly to detachable studs for fitting to the soles of boots or shoes to prevent slipping on wet or soft ground, the studs being of the type in which socket parts having projecting plates adapted to be located between the inner and outer soles are provided with recesses to receive complementary shanks on stud parts having ground-engaging heads so that the stud parts have a readily

detachable engagement with the socket parts.

The object of my invention is to provide an improved form of detachable stud and attachment of this type whereby the anchorage of the studs in the sole is made thoroughly secure without impairing the suppleness or flexibility of the sole, while still permitting the studs originally fitted to be readily removed and replaced by others of the same shape or length or of different shape or length as may be required by the normal wear of the studs or by the condition of the playing field or ground.

Accordingly my invention comprises a detachable stud of the type set forth for boots or shoes for football or like sports consisting of an individual socket part, preferably of metal, having one or more laterally projecting aligned or non-aligned wings or flanges of substantial area adapted to be located and self-supported between the inner and outer soles, the free end of the socket part being formed with a recess and being adapted to fit within an aperture in the outer sole, and a stud part of substantial length, preferably of rubber, having a shank of a shape complementary to that of the socket recess, a ground-engaging head, and an integral base of substantial thickness formed intermediate the shank and head projecting laterally with respect thereto and formed with flats adapted to be peripherally gripped manually or with a suitable tool, complementary means being provided on the inner wall of the recess in the socket part and on the outer wall of the stud shank for detachably anchoring them together substantially as described and for the purpose specified.

Several practical forms of stud and socket and methods of mounting the socket in the sole of the boot or shoe are illustrated in the accompanying drawings in which:—

Figure 1 is a perspective view of a boot adapted to be worn by a football player. The upper portion of this Figure shows the inner sole A sewn or otherwise secured to the upper E. Against said sole A are secured the sockets B adapted to receive the feet or attachment parts of the respective studs. The lower portion of this Figure shows for the sake of clearness the outwardly pulled outer sole C which is adapted, once the footwear is completed, to be applied against the inner sole A and is formed with holes D for accommodating the sockets B fixed, as aforesaid, to the inner sole A.

Figure 2 is an elevational view of a stud the head of which is in the form of a six-sided frustum and rounded off at its

top, whilst its cylindrical foot is helically grooved.

Figure 3 is a longitudinal section of a stud the head of which is similarly truncated and rounded off at the top whilst its foot is axially formed with a tapped truncated bore.

Figure 4 is a perspective view of the stud shown in Figure 2.

Figure 5 is a plan view of the head of the stud as shown in Figures 2 and 4.

Figure 6 is a perspective view of a stud, the head of which is in the shape of a six-sided frustum, whilst its foot is axially bored to provide a frusto-conical hole and formed on its peripheral surface with two longitudinal grooves, an annular groove being formed between the bottom of the head and the foot of the stud.

Figure 7 represents a stud having a six-sided truncated head and a quadrangular-foot or attachment part formed centrally along two of its parallel sides with a triangular slot, said foot being formed on both sides underneath the stud head and on the sides parallel to said slot with a triangular longitudinally extending groove.

Figure 8 shows a stud having a six-sided truncated head and a truncated four-sided foot, the latter being cylindrically bored throughout approximately midway of its height.

Figures 9 and 10 respectively shew in section on the line *a—*a**, Fig. 10, and in top plan a socket for receiving the foot of the stud shown in Fig. 2.

Figure 11 shews in diametrical vertical section a socket having a solid bottom fitted centrally with a screw-threaded frustoconical shank adapted to receive the foot of the stud as shewn in Fig. 3.

Figures 12 and 13 respectively shew in section on the line *a—*a**, Fig. 13, and in top plan the arrangement of two sockets, each of said sockets being provided with helical grooves and one of them being fitted with a stud of the type shewn in Figs. 4 and 5.

Figure 14 shews in section on the line *b—*b** and in top plan a socket, the bottom of which is solid and furnished with a frustoconical shank, said socket being formed from the level of its mouth, and over a short part of its length, with two diametrically opposed inner projections, and being adapted to receive a stud of the type shewn in Fig. 6.

Figures 15 and 16 respectively shew in vertical section on the line *c—*c**, Fig. 16, and in top plan view, a square-shaped socket internally fitted on each of its two parallel sides and at a short distance from one of its mouths, with a triangular projection, said socket being adapted to

receive a stud of the type shewn in Fig. 7.

Figures 17 and 18 respectively shew in section on the line *d-d*, Fig. 18, and in top plan view, a square-shaped socket, two parallel sides of which are pierced at the same level with a hole, one of said faces being externally reinforced opposite the hole, the latter being screw-threaded to accommodate the threaded shank of a bolt, said socket being adapted to receive a stud of the type shewn in Fig. 8.

The same references designate like or corresponding parts throughout the several views.

The studs having the several shapes as shewn in Figs. 2 to 6 each comprise a polygonal base 1 provided on the one side with a truncated pyramidal head 2 surmounted by a rounded portion 3 and, on the other side, with a cylindrical foot or shank formed with helical grooves 4 (Figs. 2 and 4) or with a plain frusto conical foot 4a (Fig. 3), or else with a frusto conical foot 4a formed with two longitudinal grooves 5 located at the ends of a diameter (Fig. 6), said foot being furthermore axially formed with a threaded frustoconical bore 6 (Fig. 3) or with a plain frustoconical bore 6a (Fig. 6). In the latter case, the frustoconical foot is formed moreover underneath the base 1, with an annular groove 7 of a depth equal to that of the longitudinal grooves 5.

In Fig. 7, the foot 4a of the stud is quadrangular and formed at a slight distance underneath its polygonal base 1 and parallel to two of its sides with grooves 8 of triangular cross-section. Its foot is moreover formed centrally and parallel to said grooves with a triangular slot or notch 9 extending over a portion of its height.

In Fig. 8, the foot of the stud has the shape of a truncated prism having a square base as shewn at 4c, and it is bored throughout midway of its height to provide a cylindrical hole 10 parallel to the plane of its base.

The cylindrical metallic socket B as shewn in Figs. 9 and 10 is fitted opposite one of its bottom faces and outwardly with diametrically opposed and equally sized flanges 11, each of which is formed with a hole 12 through which can be engaged a screw, a nail, or a rivet, 17, secured to the inner sole A. The flanges 11 may also be inclined (as shewn in dotted lines at 11a in Fig. 10). The inner cavity of the socket is helically grooved as at 14, said grooves being of a size and pitch equal to the grooves 4 of the foot of the stud shewn in Fig. 2. The stud is secured in position by screwing it into the socket B.

In Fig. 11, the cavity of the socket B

is frustoconical; its bottom is solid and the central part of said bottom is provided with a screw-threaded frustoconical shank 19. By manually compressing the stud foot (Fig. 3) it becomes possible to push it into said cavity while screwing it upon the shank 19, and thus to hold it in said cavity.

In Figures 12 and 13 two cylindrical sockets B are united on the level of their bottom faces by a flat cross-bar 16 formed with holes 12. Screws, nails, or rivets 13 engaging said holes are adapted to hold the sockets in the inner sole A.

In Figure 14 the cylindrical socket B has a solid bottom extending outwardly to provide flanges 11 by which the socket is held in the inner sole A by screws such as 13. Said solid bottom is centrally fitted with a frustoconical shank 19a upwardly extending over a portion of the socket height. From the socket mouth and innerly and over a small portion of the height of its cavity are provided two diametrically opposed lugs or tenons 20 formed integral with its wall. By slidably engaging the grooves 5 of the stud shewn in Fig. 6 into the socket along the lugs 20, the foot of said stud can be thrust right to the bottom of the socket till the lugs 20 come flush with the groove 7. By then rotating the stud thus centred on the solid bottom to the extent of 90°, it becomes possible to prevent it from getting out of the socket B, inasmuch as the lugs 20 are held in the frustoconical body 4a of its foot or attachment part.

In Figures 15 and 16, the socket B has the form of a square prism and is provided externally on both sides and flush with one of its bottoms with flanges apertured at 12 for the engagement of nails, rivets or screws adapted to hold it in the inner sole A. The socket is formed in this embodiment with two inner parallel projections 21 of triangular or trapezoidal shape which lessen its cross-sectional area at a short distance underneath its mouth. By hammering the stud shewn in Fig. 7 into such a socket, its bifurcated foot 9 is compressed when passing over the reduced portion of the socket and thereafter expands, whereby its grooves 8 of a shape similar to the projections 21 are arrested against the latter and thus hold the stud in the socket.

In Figures 17 and 18 the socket B is square prismatically shaped and externally fitted on two parallel sides thereof and flush with one of its mouths or openings with a flange 11a formed with holes 12 for securing it to the inner sole A. The sides of the inner cavity adjacent the flanges are slightly undercut and the other two sides are respectively formed with

level circular holes 22 for the engagement of the shank of a bolt 23. One apertured side of this socket is externally provided with a threaded protuberance 24, the pitch of its screw-thread, as well as the one of the screw-thread of the hole 22, being equal to that of the bolt 23. The stud shewn in Fig. 8 having been hammered into the socket in the manner above described so that its hole 10 registers with the holes 22 formed in the opposite sides of the socket, a bolt 23 is introduced into an aperture in the sole C, so as to engage through the holes 22, whereafter the bolt is screwed up into the protuberance 24 until its head 25 has entirely penetrated into the sole. The stud is then firmly retained in the socket B and in the sole C.

As illustrated in Fig. 1, after the individual sockets B provided with flanges 11 or the twin-sockets connected to each other by a bar 16, have been secured to the inner sole A, the outer sole C is applied thereagainst by thrusting the sockets B into the holes D formed therein at the required places, whereby the peripheral edge of the sockets B comes flush with the outer level of the sole C. The sole C is thereafter fixed to the sole A in the ordinary way, whereafter the sole C is ready to receive in the conveniently shaped centres of the sockets B studs having any one of the shapes as above described. Said studs can be easily mounted in position or taken off to be replaced by other studs, having a longer or shorter head or any other required shape.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A detachable stud of the type set forth for boots or shoes for football or like sports consisting of an individual socket part, preferably of metal, having one or more laterally projecting aligned or non-aligned wings or flanges of substantial area adapted to be located and self-supported between the inner and outer soles, the free end of the socket part being formed with a recess and being adapted to fit within an aperture in the outer sole, and a stud part of substantial length, preferably of rubber, having a shank of a shape complementary to that of the socket recess, a ground-engaging head, and an integral base of substantial thickness formed intermediate the shank and head projecting laterally with respect thereto and formed with flats to be gripped manually or with a suitable tool, complementary means being provided on the inner wall of the recess in the socket part and on the outer wall of the stud shank for

detachably anchoring them together substantially as described and for the purpose specified.

2. A detachable stud of the type set forth for boots or shoes for football or like sports comprising a stud of substantial length provided with a frustoconical or frusto-pyramidal shank detachably secured by being forced into a complementary undercut socket housed in the outer sole, and locked by means provided additional to the correspondingly tapered form of the socket and shank.

3. A detachable stud for boots or shoes according to Claim 1 in which the shank of the stud part is formed with a peripheral screw-thread, preferably of square section, adapted to engage a complementary screw-thread in the recess of the socket part.

4. A detachable stud for boots or shoes according to Claim 1 or 2 in which the shank of the stud part has an axial screw-threaded bore adapted to engage a screw-threaded pin projecting axially within the recess in the socket part which receives the shank of the stud part.

5. A detachable stud for boots or shoes according to Claim 1 or 2 in which the shank of the stud part enters and has a bayonet catch or equivalent connection with the complementarily shaped recess of the socket part.

6. A detachable stud for boots or shoes according to Claim 1 or 2 in which the shank of the stud part has a peripheral groove into which lead two longitudinal opposed grooves and the socket recess has complementary projections which are passed by said longitudinal grooves as the stud part is inserted into the socket part and are engaged in said peripheral groove when the stud part is partially rotated.

7. A detachable stud for boots or shoes according to claim 1 or 2 in which the shank of the stud part is of truncated rectangular pyramidal form and is retained in the complementarily shaped recess in the socket part by projections in said recess engaging grooves in the shank.

8. A detachable stud for boots or shoes according to Claim 1 or 2 in which the shank of the stud part is retained in the socket recess by a transverse pin or screw passing through the socket part and shank.

9. The improved detachable studs for boots or shoes substantially as described and as illustrated in the accompanying drawings.

Dated this 30th day of January, 1929.

For the Applicant,  
BARKER, BRETTELL & DUNCAN,  
Chartered Patent Agents,  
75 & 77, Colmore Row, Birmingham.